

Sulphur Inspections Methods & Equipment

M C Vink



**Mediterranean
Action Plan**
Barcelona
Convention





Sampling

- Sampling fuel in use and onboard
 - Analyzing
 - Change over procedure
 - Bunkering of fuel
 - Fonar
-
- Refer to the Guidance document on The consistent implementation of the 0,10% Sulphur limit in the MED SOX ECA

Sampling of Fuel in Use

- Sampling points are required to be fitted to ships of 400gt and above
- As per **MEPC.1/Circ.864/Rev.1** (2019 Guidelines for on board sampling for the verification of the sulphur content of the fuel used on board ships)
- **New ships** (keel laid on or after 1 April 2022): on delivery.
- **Existing ships** (keel laid before 1 April 2022): no later than at the first IAPP renewal survey undertaken on or after 1 April 2023.



Sampling of Fuel Onboard

- Onboard sample to be taken as per **MEPC.1/Circ.889**
→ 2020 Guidelines for on board sampling of fuel intended to be used or carried for use on board a ship
- By means of the ships transfer system or
- Sampling may alternatively be undertaken from the sounding pipe of a tank by means of a suitable sampling arrangement.

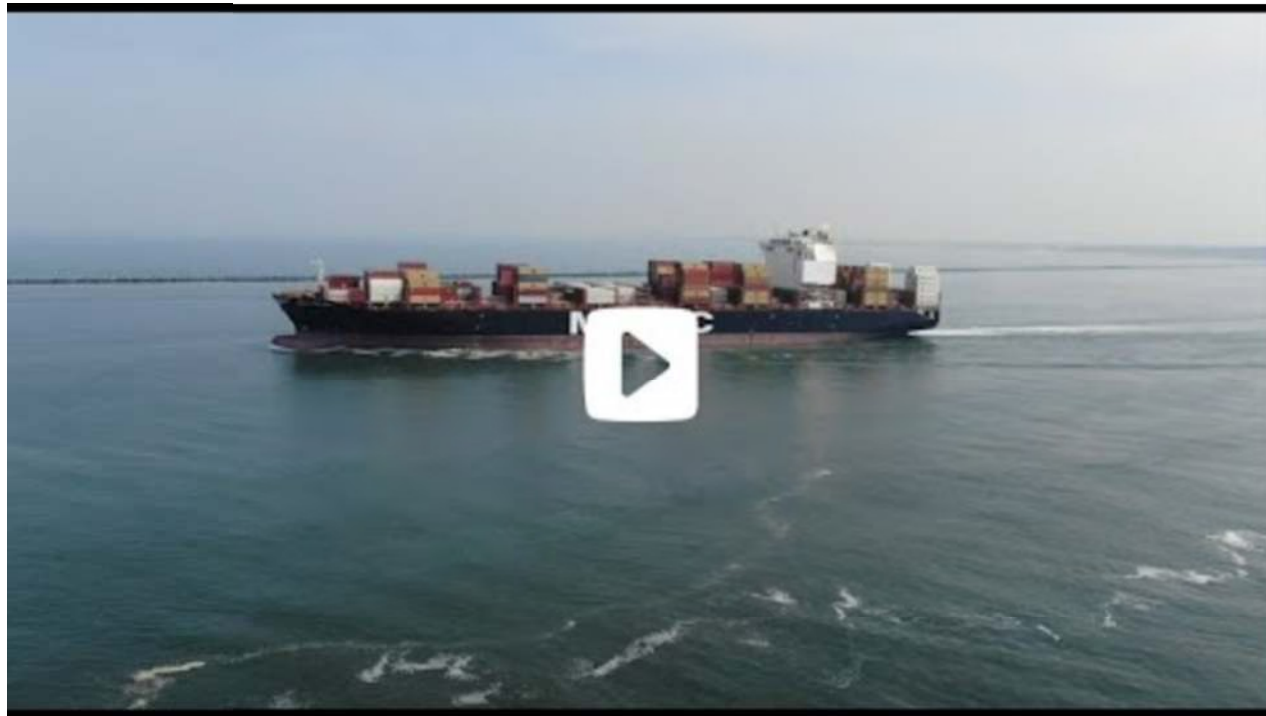
Sample handling

The sample should be collected into a suitable sample bottle.

The label should include the following information:

1. sampling point location where the sample was drawn;
2. details of the fuel oil sampled,
3. date and port of sampling;
4. name and IMO number of the ship;
5. details of seal identification; and
6. signatures and names of the inspector and the ship's representative

Sampling of Fuel in Tanks



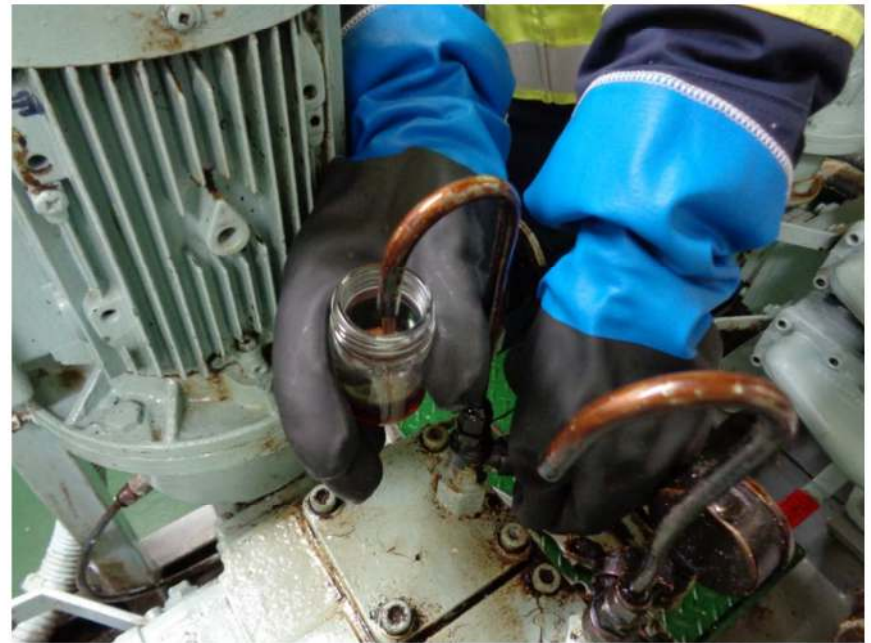
Analyses

- Take care of guidance in MARPOL Annex VI appendix VI.
- Different methods give different results
- In case of dispute use the verification procedure as mentioned in appendix VI
- Take into account the test margins as mentioned in Appendix VI
- Table 2 → 0,11 and 0,53 %m/m

Figure Miguez fuel & Lubricants



PPE Personal Protective Equipment



Fuel Changeover before entering ECAs

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Fuel types used

- Very Low Sulfur Fuel Oil (VLSFO) $<0,50\%$ S : used outside ECAs
- Ultra Low Sulfur Fuel Oil (ULSFO) $<0,10\%$ S: used inside ECAs
- BIO fuels- mainly used in a blend with other fuel types to be able to lower the amount of Sulphur.
- LNG or other gas fuel
- Heavy Fuel Oil (HSFO) → Vessels equipped with Scrubbers

Change over procedure

- A changeover plan ensures smooth transition and compliance:
- Initiate fuel switch **well before** entering the ECA.
- And use the → Low-sulphur fuel oil changeover calculator
- Use a **Fuel Oil Changeover Log** to record:
 - Date and time of switch
 - Sulfur content of fuels
 - Volume of fuel in each system
 - Location (latitude/longitude)

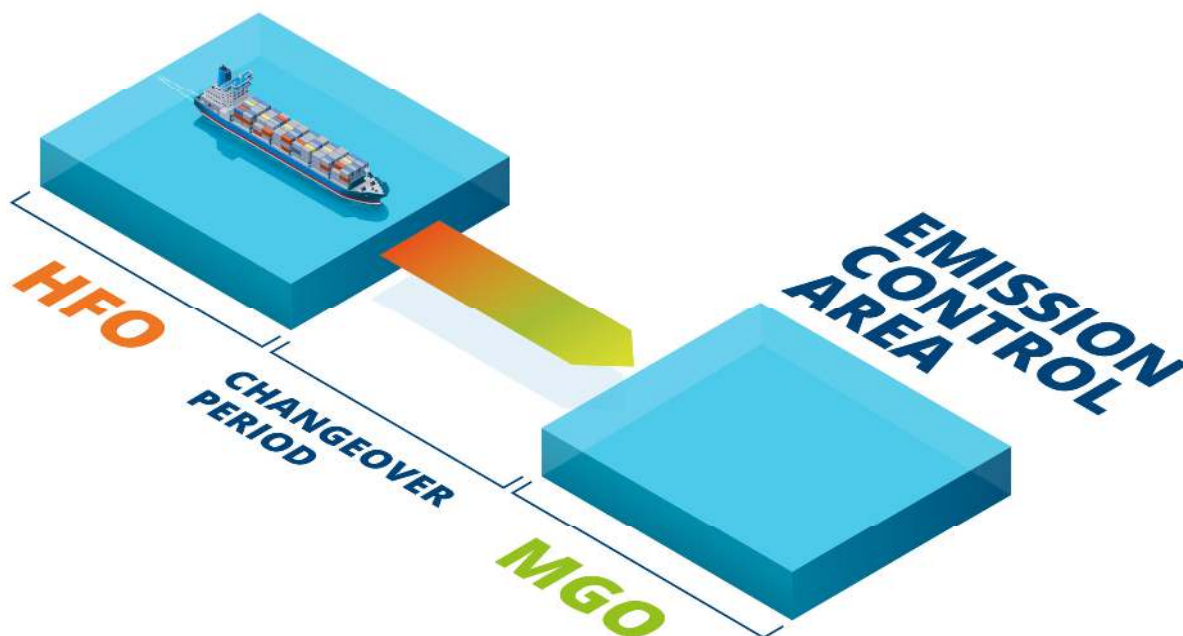
Challenges



- Temperature differences between fuels may cause waxing or poor combustion and thermal shock to engine components followed by leakages
- Viscosity differences engines must be adjusted accordingly
- Fuel compatibility and risk of filter clogging, pump seizure, or engine performance issues during or after the switch.
- Rough Sea conditions can make it dangerous to perform manual tasks involved of change over
- Crew training and onboard procedures are crucial.

Question about Fuel change over

HFO > MGO



Bunkering of fuel and Fonar procedure

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Rotterdam

Fuel bunker port

- The port of Rotterdam is Europe's largest bunkering port, as well as one of the top three bunkering ports worldwide.
- In addition to traditional fuels, the supply of alternative and renewable fuels is growing.
- The bunker transporter licence is mandatory for bunker vessels supplying seagoing vessels with the aim of bunkering these fuels safely, correctly and environmentally.
- As of 1st of Jan 2026 the use of a MFM (Mass Flow Meter) system will be mandatory

List of marine fuel suppliers in the Netherlands

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This list of marine fuel suppliers is published by the Human Environment and Transport Inspectorate (ILT) in accordance with MARPOL Annex VI Regulation 18.9.1.

This list serves solely to promote and monitor fuel availability from the Netherlands and to identify the known suppliers as specified under Regulation 18.1.

- A Nobel en Zn. Bunkerservice B.V.
- ACT Commodities (ACT fuels B.V.)
- ARA NOVA
- Atlantic Aardolieproducten Maatschappij B.V.
- Bebeka U.A.
- Belgian Trading and Bunkering B.V.
- BP Marine Nederland B.V.
- Bunkerrama B.V.
- Decoil International Oil and Trading B.V.
- Delta Bunkering B.V.
- ExxonMobil Marine Fuels BVBA



Bunker Delivery Note

Annex VI Appendix V

The BDN must include:

1. Name and IMO number of the receiving ship
2. Port and date of delivery
3. Name, address, and contact of the supplier
4. Product name(s)
5. Quantity (metric tons)
6. Density at 15°C (kg/m³)
7. Sulphur content (% m/m)
8. Flashpoint
9. Declaration signed by the supplier

What about the Ferries?

Reg 18.11

- For Ships > 400 gt on scheduled services with frequent and regular port calls
- The administration may decide after application and consultation with affected States
- That compliance with paragraph 6 may be documented in an alternative manner that gives similar certainty of compliance



Non compliant Fuel

- If a vessel arrives in waters or ports in the Netherlands without suitable fuel on board, the ILT(PSC) will take enforcement measures
- If a vessel runs out of suitable fuel at an anchorage in the Netherlands, you may not invoke, Reg 3 or Reg 18.
- The Coastguard imposes strict [conditions on bunkering in anchorage areas](#).
- If the sulphur dioxide scrubber or monitoring instrument on your seagoing vessel is malfunctioning, you must follow [MEPC.1/Circ.883/Rev.1](#) and, in certain cases, notify the port state authority.

Analysis show high sulphur

- If analysis shows that the fuel does not meet the applicable standards, the ILT (PSC) may detain the vessel and initiate criminal proceedings against the shipowner if necessary. The maximum fine is €800.000 in The Netherlands.
- Enforcement measures are for example to de-bunker the fuel and bunker compliant fuel before departure.



BIO fuel

Source
LR FOBAS In sight

Use of Bio fuel blends are increasing

Selection of established “bio-fuels” against standardized specifications

- FAME – Fatty Acid Methyl Ester (most common product when referring to biodiesel)
- HVO – Hydrotreated Vegetable Oils (paraffinic diesel known as renewable or green diesel)

Most large trading vessels are trialling VLSFO/FAME blends

When a FONAR is submitted

A FONAR should be submitted **before** using non-compliant fuel, in any of the following situations:

Situation	Action
No compliant fuel at a port	Ship must try alternative suppliers/nearby ports and document effort
Compliant fuel unexpectedly unavailable or of poor quality	Document evidence and submit FONAR
Delay in delivery of compliant fuel	Document correspondence and submit FONAR

Who receives the FONAR

- The **flag State administration**, and
 - The **relevant port State administration** (for the port where the ship is planning to arrive)
 - The report must also be **kept onboard** and made available to inspectors.
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- ***Important Notes***
 - *A FONAR **does not guarantee** that port State control will accept the non-compliance.*
 - *The ship must still **minimize the period** of using non-compliant fuel.*
 - *Records/bunker delivery notes and correspondence with suppliers must be retained as evidence.*